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Annual report on tuberculosis in England 2016

In January 2015, PHE and NHS England launched the Collaborative Tuberculosis Strategy for England 2010 to 2020 [1]. PHE has recently published the *Tuberculosis in England 2016* report which describes the epidemiology of TB in England since the launch of the strategy and provides data on the implementation of the UK pre-entry TB screening programme, the national roll-out of systematic latent tuberculosis infection (LTBI) testing and BCG vaccination coverage estimates. On the basis of the data presented, recommendations are made on the further work required to deliver the aims of the strategy and, ultimately, improved TB control in England [2].

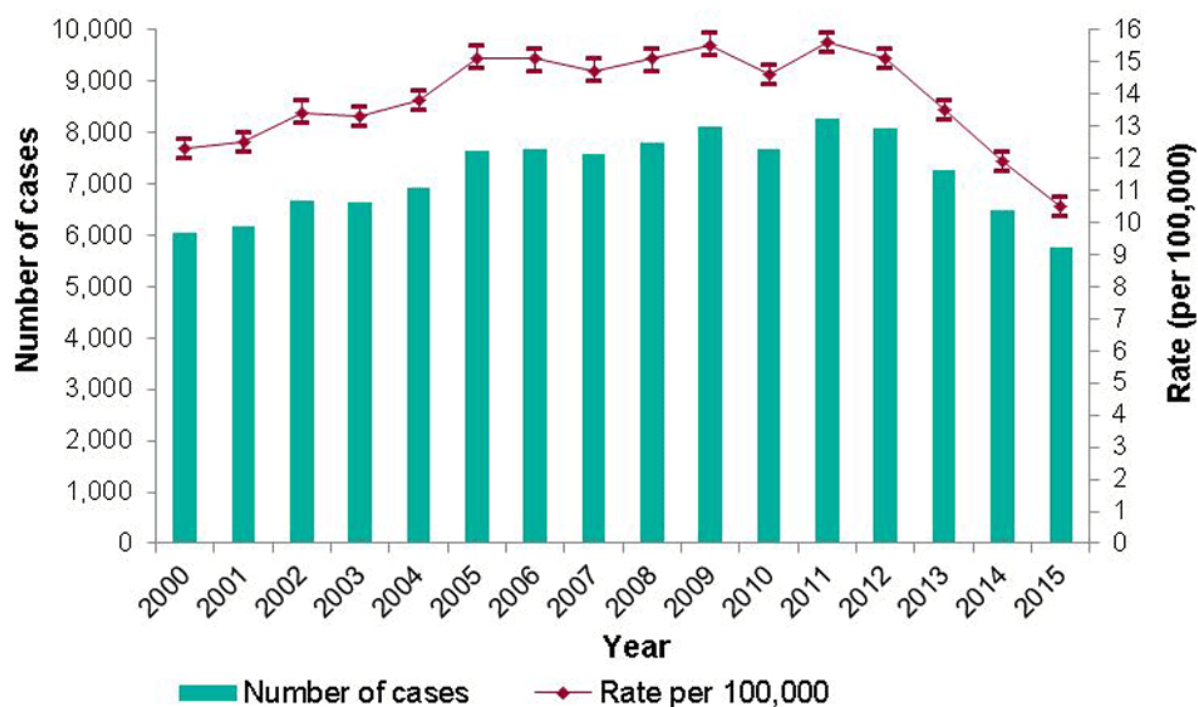
There was a year-on-year decline in the incidence of TB in England in the four years up to 2015, down to 10.5 per 100,000 (5,758 cases) in 2015 (see figure). This represents a decline of one-third since the peak incidence of 15.6 per 100,000 (8,280 cases) in 2011, and the lowest TB incidence in England since the start of enhanced TB surveillance in 2000. In the past year, the decline in the number of TB cases has been seen in both the non-UK born and UK born populations, and in all PHE Centres. However, the rate of TB in the non-UK born population is still 15 times higher than in the UK born population, and 73% of cases were non-UK born.

The recent decline in the incidence of TB in England is likely due to a combination of the impact of UK pre-entry TB screening (which identified 382 cases of active pulmonary TB in 2015), a reduction in the number of new migrants from high TB burden countries, improvements in TB control leading to a reduction in transmission, and the early impact of testing and treating LTBI.

Following a year-on-year improvement, there was been a slight reduction in 2015 in the proportion of TB cases (with an expected treatment duration of less than 12 months) who had completed treatment by 12 months, from 85.4% of cases notified in 2013 to 84.5% of cases notified in 2014. This was mainly due to a small increase in the proportion of cases who had died, from 4.1% to 4.8%.

The number and proportion of TB cases with multi-drug resistance/rifampicin resistance (MDR/RR-TB) decreased since the peak of 89 cases in 2011; there were 54 cases (1.6%) notified with initial MDR/RR-TB in 2015. However, 10 of these cases had extensive drug resistance (XDR-TB), for which there are fewer treatment options and more complex management is required.

TB case notifications and rates, England, 2000 to 2015



The number and proportion of TB cases with multi-drug resistance/rifampicin resistance (MDR/RR-TB) decreased since the peak of 89 cases in 2011; there were 54 cases (1.6%) notified with initial MDR/RR-TB in 2015. However, 10 of these cases had extensive drug resistance (XDR-TB), for which there are fewer treatment options and more complex management is required.

In 2015, there was a small reduction in the proportion of non-UK born cases who experienced a delay of more than four months from date of reported symptom onset to treatment start. However, long delays are still reported, with over a quarter of non-UK born pulmonary cases and over a third of UK born pulmonary cases having a delay of more than four months in 2015.

Despite the reduction in overall TB cases in the four years prior to 2015, the number of cases with social risk factors (homelessness, drug or alcohol misuse or imprisonment) did not decline. The proportion of cases with at least one of these risk factors increased from 9.8% in 2014 to 11.8% in 2015. TB cases in those with social risk factors were more likely to have pulmonary disease and drug resistance, and have worse TB outcomes; those notified in 2014 with at least one social risk factor were twice as likely to have died or be lost to follow-up after 12 months compared to cases without a risk factor.

To continue to achieve the ambitions of the Collaborative TB Strategy for England, a year-on-year reduction in TB incidence, and the eventual elimination of TB as a public health problem in England, sustained work is required to deliver all of the 10 key areas of action which are set out in the strategy. Specifically, it will be important to focus on:

- reducing TB among migrants through LTBI testing and treatment
- reducing diagnostic delay through awareness raising and improving accessibility of services
- maintaining the quality of TB treatment and care services to ensure continued high treatment completion
- addressing the social factors associated with TB, including the specific needs of under-served populations

References

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 2. PHE (2016). [Tuberculosis in England: 2016](#).
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Vaccine preventable disease

Laboratory confirmed reports of invasive meningococcal disease in England: April to June 2016

In England, the national Public Health England (PHE) Meningococcal Reference Unit (MRU) confirmed 194 cases of invasive meningococcal disease (IMD) between April and June 2016 [1]. IMD cases were 12% higher this quarter than the 173 cases confirmed in the equivalent quarter in 2015 (table 1).

The distribution of meningococcal capsular groups causing IMD by age is summarised in table 2, with capsular group B (MenB) accounting for 54% (105/194) of all cases, followed by MenW (n=50, 26%), MenY (n=29, 15%) and MenC (n=10, 5%). The number of cases of MenW IMD confirmed in the fourth quarter of the 2015/16 epidemiological year (running 1 July, in one year, to 30 June the following year) increased by 16% from 43 in the same period in 2014/2015 to 50 cases. MenY increased by 26% from 23 to 29 cases. MenB cases increased from 101 in the fourth quarter of 2014/15 to 105 cases (4% increase) in the same period of 2015/16 and the number of MenC cases more than doubled from 4 cases in the fourth quarter of 2014/15 to 10 in the same period in 2015/16. There were no reported cases for capsular groups A, X and Z/E (table 1) in England during 2015/16.

In the second quarter of 2016 MenB was responsible for over two thirds of IMD cases in infants (18/27, 67%) and toddlers (32/45, 71%) but, as expected, contributed to a lower proportion of cases in older age groups (table 2). The introduction of a routine national MenB immunisation programme for infants was announced in June 2015 [2] with immunisation of infants starting from 1 September 2015. Preliminary vaccine coverage estimates for those eligible for infant MenB immunisation are 94.3% for one dose and 91.5% for two doses by 52 weeks of age (evaluated to the end of August 2016) [3].

Capsular groups other than MenB were more prevalent in older age groups (table 2). Thirty-four percent of the 50 MenW cases in the second quarter of 2016 were in children under five years with 26% in adults aged 65+ years, 22% aged 45-64 years and 10% in 15-24 year-olds. The increase in MenW cases, which has been previously reported [4,5], led to the introduction of MenACWY conjugate vaccine to the national immunisation programme in England [6,7].

MenACWY vaccine replaced the existing time-limited 'freshers' programme from August 2015 and was directly substituted for MenC vaccine in the routine adolescent schools programme (school year 9 or 10) from Autumn 2015. In addition a GP-based catch-up campaign has been implemented for school leavers in 2015 (aged 18 on 31 August 2015) who were prioritised for the first phase of the GP-based catch-up that began in August 2015. Cumulative vaccine coverage was 36.6% when evaluated at the end of July 2016, compared to 35.2% at the end of March 2016 [8]. A second GP-based catch-up campaign started in April 2016, targeting school leavers in 2016. The early vaccine coverage estimates for the second MenACWY catch-up programme (individuals aged 18 on 31 August 2016) and evaluated from April 2016 to the end of August 2016 was 17.4%, compared to 11.1% to the end of July 2016 [9]. It is important that these teenagers continue to be encouraged to be immunised, particularly if they are entering Higher Education Institutions.

The early impact of both the infant MenB and MenACWY teenage vaccination programmes are being assessed.

Table 1. Invasive meningococcal disease in England by capsular group and laboratory testing method: April - June (Q2), 2016

Capsular groups~	CULTURE AND PCR		CULTURE ONLY		PCR ONLY		Total		Cumulative Total	
	2015	2016	2015	2016	2015	2016	2015	2016	2014/15	2015/16#
	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	from Q3 2014 to Q2 2015	from Q3 2015 to Q2 2016
B	26	32	27	20	48	53	101	105	418	444
C	1	0	1	8	2	2	4	10	29	42
W	4	6	33	29	6	15	43	50	176	210
Y	3	3	15	19	5	7	23	29	93	101
Ungrouped*	0	0	0	0	1	0	1	0	4	6
Ungroupable*	0	0	1	0	0	0	1	0	4	2
Total	34	41	77	76	62	77	173	194	724	805

2015/16 epidemiological year (running from 01/07/2015 to 30/06/2016).

~ No cases of groups A, X or Z/E were confirmed during the periods summarised in the table.

* Ungroupable refers to invasive clinical meningococcal isolates that were non-groupable, while ungrouped cases refers to culture-negative but PCR screen (ctrA) positive and negative for the four genogroups [B, C, W and Y] routinely tested for.

Table 2: Invasive meningococcal disease in England by capsular group and age group at diagnosis: April - June (Q2), 2016

Age groups	Capsular Group~								Total		2015/2016#	
	B		C		W		Y		Q2		from Q3 2015 to Q2 2016	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
<1 year	18	17.1	0	0.0	5	10.0	4	13.8	27	13.9	116	14.4
1-4 years	32	30.5	0	0.0	12	24.0	1	3.4	45	23.2	178	22.1
5-9 years	11	10.5	1	10.0	1	2.0	0	0.0	13	6.7	56	7.0
10-14 years	5	4.8	0	0.0	1	2.0	1	3.4	7	3.6	21	2.6
15-19 years	9	8.6	1	10.0	2	4.0	2	6.9	14	7.2	76	9.4
20-24 years	7	6.7	1	10.0	3	6.0	2	6.9	13	6.7	47	5.8
25-44 years	3	2.9	1	10.0	2	4.0	0	0.0	6	3.1	45	5.6
45-64 years	11	10.5	4	40.0	11	22.0	3	10.3	29	14.9	99	12.3
>=65 years	9	8.6	2	20.0	13	26.0	16	55.2	40	20.6	167	20.7
Total	105		10		50		29		194		805	

2015/16 epidemiological year (running from 01/07/2015 to 30/06/2016).

~ No cases of groups A, X or Z/E were confirmed during the periods summarised in the table.

* Other includes Ungroupable and Ungrouped.

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1. Data source: Public Health England Meningococcal Reference Unit, Manchester.
2. PHE and NHS England (June 2015). [Introduction of MenB immunisation for infants](#).
3. PHE (2016). [MenB vaccine coverage estimates, report: to end of August 2016](#). *HPR* 10(32), 23 September.
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5. ["Freshers told, 'It's not too late' for meningitis C vaccine"](#), PHE press release, 27 November 2014.
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7. PHE website. [Meningococcal ACWY \(MenACWY\) vaccination programme](#).
8. PHE (2016). [Vaccine coverage estimate for the GP based catch-up meningococcal ACWY \(MenACWY\) immunisation programme for school leavers \(becoming 18 or 19 before 31 August 2016\) in England, cumulative data to the end of July 2016](#). *HPR* 10(28), 26 August.
9. PHE (2016). [MenACWY vaccine coverage estimates, report: to end of August 2016](#). *HPR* 10(32), 19 September.

Infection report

Volume 10 Number 33 Published on: 30 September 2016

Vaccine coverage

Quarterly vaccination coverage statistics for children aged up to five years in the UK (COVER programme): April to June 2016

This report summarises UK quarterly vaccine coverage data for each routine childhood vaccination for children who reached their first, second, or fifth birthday during the evaluation quarter. Analyses are presented at NHS England local and area team, country and UK levels.

Key points for the first quarterly report for 2016/17

- Quarterly UK coverage for DTaP/IPV/Hib3 at one year decreased slightly by 0.1% to 93.6 compared to the previous quarter (January to March 2016). This is the second quarterly evaluation below 94% since July to September 2010. England continues to be the only UK country with coverage below the WHO 95% target, although five out of the 13 NHS England local teams achieved the target.
- These findings continue the decreasing trends in coverage highlighted in the recently published 2015-16 annual immunisation statistics for England. In 2015-16, Vaccine coverage for most childhood vaccines evaluated 12 and 24 months of ages decreased for the third consecutive year, a drop of around 1% compared to 2012-13. MMR at 24 months has decreased 0.8% since its 2013/14 peak
- UK level data for completed two-dose rotavirus vaccine evaluated at one year decreased by 0.3% from the previous quarter to 90.1%, with minor decreases observed in all countries.
- Coverage is above the WHO 95% target for all vaccines evaluated at two years of age in all devolved administrations. In England only DTaP/IPV/Hib3 coverage achieved 95%, and coverage for the three vaccines offered in the second year of life (PCV booster, Hib/MenC booster and MMR1) remained around 91.4%.
- UK coverage of MMR1 at five years old continues to exceed the WHO target of 95%, increasing 0.2% to 95.4%. In England, coverage increased by 0.1% to 95% and all three devolved administrations achieved at least 97%. The recently published [2015-16 annual immunisation statistics](#) have also noted that, coverage at five years which predominantly reflects vaccinations given more than two years ago, continues to increase except for the booster doses offered from around three and a half years of age.
- The [Tuberculosis in England 2016 report](#) was published this month. It included experimental annual 2015-16 BCG coverage figures for local authorities running a universal neonatal programme, collected as part of the annual 2015-16 COVER programme in England using data from Child Health Information Systems (CHISs). In this quarterly COVER report BCG coverage data for the first quarter of 2016-17 are presented alongside the annual data showing the potential impact of the BCG vaccine shortage. Nine of the 10 local authorities with a TB incidence over 40 per 100,000 in London reported coverage ranging from 22.3% to 92.6%.

Cohort definitions for April to June 2016

Children who reached their first birthday in the quarter (born April to June 2015) were scheduled for three doses of the combined diphtheria, tetanus, acellular pertussis, polio, and *Haemophilus influenzae* type b vaccine (DTaP/IPV/Hib vaccine), two doses of pneumococcal conjugate vaccine (PCV), one dose of meningococcal serogroup C conjugate vaccine (MenC vaccine) at three months of age and two doses of rotavirus vaccine at two and three months of age [1].

Children who reached their second birthday in the quarter (born April to June 2014) were scheduled to receive their third DTaP/IPV/Hib, second MenC and PCV vaccinations between May and July 2014, and their first measles, mumps, and rubella (MMR) vaccination, a booster dose of Hib and MenC (given as a combined Hib/MenC vaccine) and PCV vaccines at the same visit at 12 months of age, between May and July 2015.

Children who reached their fifth birthday in the quarter (born April to June 2011) were scheduled to receive their third dose DTaP/IPV/Hib and second MenC and PCV vaccinations between August and October 2011. They were also scheduled to receive their first MMR, Hib/MenC booster and PCV booster after their first birthday (April to June 2012) between May and July 2012, and their pre-school diphtheria, tetanus, acellular pertussis, inactivated polio booster (DTaP/IPV) and second dose MMR from April 2014.

Children born to hepatitis B surface antigen (HBsAg) positive mothers, who reached their first birthday in this quarter (born April to June 2015) were scheduled to receive an initial dose of hepatitis B vaccine at birth, with further doses at one and two months of age, and those who reached their second birthday in this quarter (born April to June 2014) were scheduled to receive a four dose at one year of age.

Children born in areas where there is a universal neonatal BCG programme (i.e. TB incidence $\geq 40/100,000$) who reach their first birthday in this quarter (born April to June 2015) were scheduled to receive BCG at birth.

Appendix A describes coverage evaluated at the first, second and fifth birthdays by country and NHS England local and area teams.

Participation and data quality

Data were received from all Health Boards (HBs) in Scotland, Northern Ireland and Wales. In England, Area Teams (ATs) and Child Health Record Departments (CHRDs) provided data.

In England, implementation of a new COVER Information Standard Notice (ISN) [2] by CHIS suppliers for the vaccination schedule changes introduced in 2013 is almost complete, with MenC coverage data at 12 months available for all 152 local authorities (LAs) and 12 month rotavirus coverage data for all but eight LAs. Due to limitations in the current CHIS IT infrastructure, the requested change to collecting COVER data by resident rather than responsible LA population has been postponed, and for the foreseeable future COVER will only be requesting CHISs to submit data by responsible LA population. This is the first quarterly COVER report to publish data by LA responsible population and individual LA data, with relevant caveats, are available [here](#).

Recent immunisation programme changes

The [Joint Committee on Vaccination and Immunisation \(JCVI\)](#) have recommended that infants no longer require vaccination against MenC. Therefore, from 1 July 2016, infants should no longer receive the dose of MenC conjugate vaccine currently given at the second primary immunisation visit at around 12 weeks of age. Children will continue to be immunised against MenC via the Hib/MenC vaccine dose given at 12 months of age and the MenACWY conjugate vaccine dose given at around 14 years of age [3]. The last cohort to be evaluated at for MenC at 12 months of age will be those born between January

and March 2016, making the January to March 2017 quarterly COVER collection the final one to evaluate MenC at 12 months.

The first routine assessment of MenB vaccine coverage for children at 12 months will be the July to September 2016 quarter (to be published in the COVER report in December 2016). In order to rapidly assess vaccine coverage of this newly implemented immunisation programme, PHE has put in place a temporary sentinel surveillance system. This uses general practice (GP) level MenB vaccine coverage data automatically uploaded via participating GP IT suppliers to the ImmForm website on a monthly basis. Preliminary vaccine coverage estimates have been published for infants eligible for MenB immunisation. MenB coverage for the cohorts evaluated at the end of August 2016 was 95.8% for one dose and 87.8% for two doses by 26 weeks of age and 94.3% and 91.5% for one and two doses respectively at 52 weeks [4].

Results

Coverage at 12 months

Compared to the previous quarter (January-March 2016), UK coverage in April to June 2016 decreased by 0.3% for rotavirus to 90.1%, by 0.2% for PCV2 to 93.7%, and by 0.1% for DTaP/IPV/Hib3 to 93.6%. MenC coverage remained at 95.5% (table 1a) [5]. All devolved administrations achieved above 96% for DTaP/IPV/Hib3, PCV2 and MenC. In England coverage was least 93% for these three vaccines and 12 out of 25 ATs reached the 95% target at 12 months, with all ATs achieving at least 90% for all three vaccines except Kent and Medway, and London (table 1a).

Coverage at 24 months

UK coverage for the primary course (three doses) of DTaP/IPV/Hib at two years of age decreased 0.2% to 95.5% compared to the previous quarter (table 2a) [5]. Each of the four countries achieved the 95% WHO target. Lancashire (Q47), North Yorkshire and Humber (Q50), Kent and Medway (Q67), Surrey and Sussex (Q68) and London (Q71) are the only ATs with DTaP/IPV/Hib3 coverage below 95% (table 2b). UK coverage for Hib/MenC and PCV boosters remained at 92.1% and 92.0% respectively (table 2a) [5].

UK MMR coverage evaluated at two years decreased by 0.1% to 92%, back to the level recorded in the October to December 2015 quarter [6]. Country-level coverage increased by 0.1% and 0.2% in Scotland and Wales respectively to 95.7%, but decreased by 0.9% to 95.0% in Northern Ireland and by 0.1% to 91.4% in England, (table 2a). Four English ATs achieved the WHO target of 95% (Cheshire, Warrington and Wirral (Q44), Durham, Darlington and Tees (Q45), Arden, Herefordshire and Worcestershire and Hertfordshire (Q53) and the South Midlands (Q58), table 2b).

Coverage at five years

UK coverage evaluated at five years for both DTaP/IPV/Hib3 and MMR1 exceeded the WHO target of 95%; DTaP/IPV/Hib3 increased by 0.2% compared to the previous quarter to 96.2% and MMR1 increasing 0.2% to 95.4% (table 3a) [5]. MMR1 coverage in Scotland and Wales achieved at least 97%, in Northern Ireland reached 98%. In England, MMR1 coverage was 95% overall with only two of the 25 ATs in England (London, Surrey and Sussex) failed to achieve this level (table 3b). UK MMR2 coverage decreased by 0.6% to 88.2%, and is now back to a similar level reported for the October to December 2015 quarter (table 3a) [5, 6].

UK coverage of the pre-school booster (DTaP/IPV) decreased by 0.6% to 87.6% with decreases recorded in all countries, although the greatest drop was in England (down 0.8% to 85.9%). In April 2016, English CHSs were asked to follow the recommended minimum age for this booster vaccine, 3 years and 4 months, to calculate coverage as specified in the COVER ISN [2]. Doses given prior to this age are no longer included in vaccine coverage calculations. This may have contributed to the recorded decline in coverage in areas where some children are routinely receiving the vaccine earlier. It is

recommended that all call recall systems standardise on scheduling the pre-school booster from 3 years and 4 months.

Neonatal hepatitis B vaccine coverage in England

Vaccine coverage data in England for three doses of hepatitis B vaccine, in infants born to hepatitis B surface antigen (HBsAg) positive mothers, who reached the age of one year in this quarter (i.e. those born between April to June 2015), and coverage of four doses of vaccine in infants who reached two years of age (i.e. those born between April to June 2014) are presented by area team in table 4.

The quality of these data is variable and coverage by area team relies on small numbers. As such, data should be interpreted with caution. Where an area reported no vaccinated children, a check was made to ensure that this was zero reporting rather than absence of available data. Compared with the previous quarter, coverage for three doses by 12 months of age decreased by 4% to 87% and decreased by 6% to 63% for those receiving four doses by 24 months (table 4) [5].

BCG vaccine coverage in England

The BCG immunisation programme across England is based on risk of exposure to TB. The vaccine is recommended at birth for all children that live in an area that has a TB incidence of higher than 40 per 100,000 population. Neonatal BCG has been included in the data extraction template from local CHISs since April 2015, as part of the COVER (Cover of vaccination evaluated rapidly) programme. This provides an opportunity to estimate BCG vaccine at 12 months for LAs offering a universal neonatal programme. For the first time, the 2016 annual TB report for England (published in September 2016) includes experimental annual 2015-16 BCG coverage figures for local authorities running a universal neonatal programme, collected as part of the annual 2015-16 COVER programme in England. This quarterly COVER report presents BCG coverage data for the first quarter of 2016-17 alongside the 2015-16 annual data for comparison. There are currently 11 LAs in England with a high incidence of TB, of which 10 are running a universal programme. Due to large cross-boundary movement, there are a further 25 local authorities in London and one outside London that offer a universal vaccination. Coverage estimates for children born between April and June 2015 in LAs with high TB incidence ranged from 22.3% to 92.6%. In the remaining 24 London LAs, coverage ranged from 3.9% to 85%.

COVER collections for BCG data have only recently been established and data are of variable quality. Estimates of low coverage may therefore in part be reflecting poor data quality, and should be interpreted with caution. A shortage of BCG vaccine since May 2015 has likely impacted on coverage in 2015-16, and more so on coverage between April-June 2016, which refers to those born between April and June 2015.

Relevant links for country-specific coverage data

Quarterly England data: <https://www.gov.uk/government/collections/vaccine-uptake#cover-of-vaccination-evaluated-rapidly-programme>

Annual England data: <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/immunisation>

Northern Ireland: <http://www.publichealthagency.org/directorate-public-health/health-protection/vaccination-coverage>

Scotland: <http://www.isdscotland.org/Health-Topics/Child-Health/Immunisation/>

Wales: <http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=54144/>

COVER submission and publication dates:

<https://www.gov.uk/government/publications/vaccine-coverage-statistics-publication-dates>

Other relevant links

<https://www.gov.uk/government/collections/immunisation>

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7. Public Health England (2016). Tuberculosis in England 2016 report: presenting data to end of 2015. Available at <https://www.gov.uk/government/publications/tuberculosis-in-england-annual-report>

Appendix: Tables

Table 1a. Completed UK primary immunisations at 12 months by country and English Local Teams: April to June 2016 (*January to March 2016*[^])

	Country	No. of LAs/HBs†	DTaP/IPV/Hi b3 %	MenC%	PCV2%	Rota2%
	United Kingdom	177	93.6 (93.7)	95.5 (95.5)	93.7 (93.9)	90.1 (90.4)
	Wales	7	96.2 (96.3)	97.2 (97.6)	96.1 (96.3)	93.8 (93.9)
	Northern Ireland	4	96.7 (97.1)	97.8 (98.4)	96.7 (97.1)	94.2 (94.8)
	Scotland	14	97.1 (97.0)	97.8 (97.7)	97.1 (97.1)	93.2 (93.4)
	England (Total)	152	93.0 (93.2)	95.2 (95.1)	93.1 (93.4)	89.5 (89.7)
LT code	NHS England Local Teams					
Q70	Wessex	7	95.4 (95.7)	96.3 (96.8)	95.1 (95.3)	93.7 (94.3)
Q71	London	33	88.8 (88.4)	90.5 (91.0)	89.0 (88.6)	86.6 (85.1)
Q72	North (Yorkshire & Humber)	15	95.4 (95.3)	97.3 (96.9)	95.3 (95.5)	92.6 (92.6)
Q73	North (Lancashire & Grt. Manchester)	13	93.8 (93.6)	96.4 (94.6)	93.9 (93.6)	82.6 (80.3)
Q74	North (Cumbria & North East)	13	94.6 (96.4)	96.9 (97.2)	94.6 (96.9)	92.6 (94.0)
Q75	North (Cheshire & Merseyside)	9	94.8 (95.1)	96.7 (97.4)	94.8 (95.1)	91.1 (91.6)
Q76	Midlands & East (North Midlands)	8	94.7 (95.6)	96.5 (97.6)	94.8 (95.6)	92.3 (93.8)
Q77	Midlands & East (West Midlands)	10	92.4 (93.1)	95.5 (95.2)	92.6 (93.3)	89.0 (89.8)
Q78	Midlands & East (Central Midlands)	10	95.7 (96.3)	97.3 (97.4)	95.8 (96.3)	93.2 (94.0)
Q79	Midlands & East (East)	7	95.0 (95.3)	97.2 (97.1)	95.3 (95.4)	91.8 (92.3)
Q80	South (South West)	9	93.7 (94.2)	96.0 (96.2)	93.9 (94.5)	87.8 (88.5)
Q81	South (South East)	6	88.8 (88.9)	93.1 (92.9)	89.5 (89.4)	85.9 (85.1)
Q82	South (South Central)	12	95.2 (94.7)	96.3 (95.7)	94.9 (94.6)	92.2 (91.3)

† Local Authorities /health boards.

[^] Former area team and local team aggregates are based on former PCT data

Table 1b. Completed UK primary immunisations at 12 months NHS England Area Teams: April to June 2016 (*January to March 2016*[^])

NHS England Local team code*	English Area Team (AT code)	No. of former LA's	DTaP/IPV/Hib 3%	MenC%	PCV2%	Rota2% ¹
Q70	Wessex (Q70)	7	95.4 (95.7)	96.3 (96.8)	95.1 (95.3)	93.7 (94.3)
Q71	London (Q71)	33	88.8 (88.4)	90.5 (91.0)	89.0 (88.6)	86.6 (85.1)
Q72	N. Yorkshire and Humber (Q50)	6	95.9 (94.7)	97.6 (96.5)	96.0 (95.1)	94.4 (92.6)
	S. Yorkshire and Bassetlaw (Q51)	4	95.2 (95.7)	97.0 (96.6)	95.0 (96.1)	93.3 (93.6)
	W. Yorkshire (Q52)	5	95.2 (95.4)	97.3 (97.2)	95.0 (95.3)	91.7 (92.2)
Q73	Greater Manchester (Q46)	10	94.3 (94.1)	96.8 (96.5)	94.3 (94.0)	83.8 (80.3)
	Lancashire (Q47)	3	92.5 (92.0)	95.5 (91.1)	93.0 (92.5)	79.9 (n/a ²)
Q74	Durham, Darlington and Tees (Q45)	6	96.4 (96.9)	98.0 (98.0)	96.4 (96.9)	95.2 (97.1)
	Cumbria, Northumberland, Tyne and Wear (Q49)	7	93.4 (96.0)	96.1 (96.7)	93.5 (96.8)	91.7 (93.0)
Q75	Cheshire, Warrington and Wirral (Q44)	4	96.4 (96.2)	97.1 (98.1)	96.4 (96.2)	93.9 (93.8)
	Merseyside (Q48)	5	93.2 (94.2)	96.3 (96.8)	93.1 (94.0)	88.3 (89.6)
Q76	Derbyshire and Nottinghamshire (Q55)	4	93.9 (95.1)	95.7 (97.4)	94.2 (95.1)	91.5 (93.2)
	Shropshire and Staffordshire (Q60)	4	95.7 (96.4)	97.5 (97.8)	95.8 (96.2)	93.5 (94.4)
Q77	Arden, Herefordshire and Worcestershire (Q53)	4	96.0 (96.7)	97.6 (98.0)	95.8 (96.6)	92.5 (93.7)
	Birmingham and the Black Country (Q54)	6	90.6 (91.2)	94.4 (93.5)	91.0 (91.5)	87.2 (87.5)
Q78	Hertfordshire and the S Midlands (Q58)	6	95.6 (96.6)	97.2 (97.4)	95.7 (96.6)	93.3 (94.2)
	Leicestershire and Lincolnshire (Q59)	4	96.0 (95.7)	97.5 (97.3)	95.9 (95.8)	93.1 (93.6)
Q79	East Anglia (Q56)	4	95.0 (95.5)	97.2 (97.2)	95.3 (95.6)	91.6 (92.5)
	Essex (Q57)	3	95.0 (94.9)	97.2 (97.1)	95.2 (95.2)	92.0 (92.1)
Q80	Bristol, N Somerset, Somerset and S Gloucestershire (Q65)	4	94.6 (95.3)	96.4 (96.8)	94.5 (95.6)	89.8 (90.1)
	Devon, Cornwall, Isles of Scilly (Q66)	5	92.8 (93.1)	95.7 (95.6)	93.2 (93.4)	85.9 (86.8)
Q81	Kent and Medway (Q67)	2	86.9 (89.4)	92.2 (93.0)	87.6 (89.7)	83.4 (84.5)
	Surrey and Sussex (Q68)	4	90.1 (88.6)	93.7 (92.8)	90.8 (89.2)	87.5 (85.7)
Q82	Bath, Gloucestershire, Swindon and Wiltshire (Q64)	4	94.7 (94.2)	96.5 (95.8)	94.8 (94.4)	92.1 (91.6)
	Thames Valley (Q69)	8	95.5 (95.0)	96.2 (95.7)	94.9 (94.8)	92.3 (91.1)

n/a accurate estimate not available

¹based on coverage data from 150/152 LAs, see full tables [here](#)

²data quality issues reported

* See table 1a for key to local team organisational code

[^] Former area team and local team aggregates are based on former PCT data

Table 2a. Completed UK primary immunisations at 24 months by country and NHS England local team: April to June 2016 (*January to March 2016*[^])

Country	No. of former LAs/ HBs†	DTaP/IPV/Hib3 %	PCV booster %	Hib/MenC %	MMR1 %
United Kingdom	177	95.5 (95.7)	92.0 (92.0)	92.1 (92.1)	92.0 (92.1)
Wales	7	97.9 (97.7)	96.0 (95.9)	95.1 (95.0)	95.7 (95.5)
Northern Ireland	4	97.9 (98.3)	95.5 (96.3)	95.3 (95.9)	95.0 (95.9)
Scotland	14	97.9 (97.8)	95.4 (95.2)	95.6 (95.4)	95.1 (95.0)
England (Total)	152	95.1 (95.3)	91.4 (91.3)	91.5 (91.5)	91.4 (91.5)
NHS England local teams*					
Q70	7	95.9 (96.3)	93.3 (93.9)	93.2 (93.8)	93.1 (93.8)
Q71	33	92.2 (92.1)	83.7 (84.8)	84.8 (85.1)	84.4 (85.3)
Q72	15	96.0 (96.6)	94.4 (94.3)	94.2 (94.2)	94.1 (94.0)
Q73	13	95.0 (94.5)	92.5 (91.0)	92.3 (90.9)	92.7 (91.2)
Q74	13	97.6 (97.7)	95.0 (94.4)	94.8 (95.5)	94.8 (95.3)
Q75	9	96.9 (97.1)	93.7 (92.8)	92.4 (94.0)	93.6 (93.8)
Q76	8	96.8 (97.6)	93.8 (94.8)	93.7 (94.9)	93.6 (94.7)
Q77	10	95.9 (96.3)	92.6 (92.9)	92.6 (93.0)	92.5 (93.0)
Q78	10	97.5 (97.2)	95.2 (94.7)	95.3 (94.8)	94.9 (94.5)
Q79	7	96.3 (96.3)	93.7 (93.6)	93.6 (93.6)	93.3 (93.3)
Q80	9	96.4 (96.1)	93.0 (92.6)	92.7 (92.6)	92.8 (92.4)
Q81	6	90.7 (92.0)	88.3 (87.1)	88.3 (87.6)	88.0 (87.6)
Q82	12	96.0 (96.5)	92.8 (92.9)	93.1 (93.3)	93.3 (93.1)

* See table 1a for key to local team organisational code.

† Local Authorities/health boards

[^] Former area team and local team aggregates are based on former PCT data

Table 2b. Completed primary immunisations at 24 months by NHS England Area Teams: April to June 2016 (*January to March 2016*[^])

NHS England Local Team Code*	Area Team code*	No. of LAs †	DTaP/IPV/Hib3 %	PCV booster %	Hib/MenC %	MMR1 %
Q70	Q70	7	95.9 (96.3)	93.3 (93.9)	93.2 (93.8)	93.1 (93.8)
Q71	Q71	33	92.2 (92.1)	83.7 (84.8)	84.8 (85.1)	84.4 (85.3)
Q72	Q50	6	94.2 (95.9)	94.4 (94.4)	93.9 (94.1)	93.9 (93.9)
	Q51	4	96.7 (96.4)	94.0 (92.0)	93.8 (92.6)	93.8 (92.6)
	Q52	5	96.7 (97.2)	94.6 (95.3)	94.7 (95.2)	94.3 (95.0)
Q73	Q46	10	96.1 (96.2)	92.5 (92.5)	92.3 (92.2)	93.0 (93.0)
	Q47	3	92.7 (90.9)	92.4 (87.7)	92.4 (87.9)	92.2 (87.5)
Q74	Q45	6	97.3 (97.9)	95.3 (93.1)	95.7 (95.8)	95.2 (95.0)
	Q49	7	97.8 (97.7)	94.8 (95.2)	94.3 (95.4)	94.4 (95.4)
Q75	Q44	4	97.1 (97.3)	94.3 (92.8)	92.1 (94.7)	95.0 (94.9)
	Q48	5	96.8 (96.8)	93.2 (92.9)	92.7 (93.3)	92.3 (92.6)
Q76	Q55	4	96.1 (97.6)	92.8 (94.0)	92.8 (94.1)	92.7 (93.9)
	Q60	4	97.8 (97.8)	95.1 (95.9)	95.0 (95.9)	94.8 (95.7)
Q77	Q53	4	97.4 (98.1)	95.8 (95.4)	96.1 (95.8)	96.3 (96.3)
	Q54	6	95.1 (95.4)	91.1 (91.7)	90.8 (91.5)	90.6 (91.4)
Q78	Q58	6	97.7 (97.3)	95.8 (95.2)	96.0 (95.3)	95.4 (95.0)
	Q59	4	97.3 (97.1)	94.1 (93.8)	93.9 (94.0)	94.1 (93.8)
Q79	Q56	4	96.1 (96.0)	92.9 (93.3)	92.8 (93.3)	92.7 (93.4)
	Q57	3	96.6 (96.6)	94.7 (93.9)	94.5 (94.0)	94.0 (93.1)
Q80	Q65	4	97.0 (96.6)	93.5 (92.8)	93.5 (93.0)	93.0 (92.4)
	Q66	5	95.7 (95.7)	92.5 (92.5)	91.9 (92.3)	92.6 (92.4)
Q81	Q67	2	91.3 (94.5)	87.8 (88.3)	87.4 (88.4)	86.6 (88.1)
	Q68	4	90.4 (90.3)	88.7 (86.1)	88.9 (87.0)	89.0 (87.2)
Q82	Q64	4	96.1 (96.5)	92.9 (92.7)	92.7 (92.8)	92.8 (92.5)
	Q69	8	96.0 (96.6)	92.7 (93.0)	93.3 (93.6)	93.6 (93.4)

* See table 1a and 1b for keys to NHS England local team/Area Team organisational code.

† Local Authorities

[^] Former area team and local team aggregates are based on former PCT data

Table 3a. Completed UK primary immunisations and boosters at five years by country and NHS England local team: April to June 2016 (January to March 2016[^])

Country	Number of LAs/HBs†	Primary		Booster		
		DTaP/IPV Hib3%	MMR1%	MMR2%	DTaP/IPV%	Hib/MenC%
United Kingdom	177	96.2 (96.0)	95.4 (95.2)	88.2 (88.8)	87.0 (87.6) [§]	93.1 (93.2)
Wales	7	95.9 (96.2)	97.0 (97.0)	91.0 (91.4)	92.3 (92.4)	93.5 (94.1)
N. Ireland	4	98.4 (97.9)	98.0 (97.4)	92.6 (93.4)	93.6 (94.1)	96.9 (96.7)
Scotland	14	98.3 (98.3)	97.2 (97.3)	92.8 (92.9)	93.4 (93.5)	96.5 (96.4)
England (Total)	152	96.0 (95.7)	95.0 (94.9)	87.5 (88.2)	85.9 (86.7) [§]	92.6 (92.8)
<i>English Local Teams</i>						
Q70	7	96.1 (96.4)	95.4 (95.3)	89.5 (90.3)	87.9 (88.9)	93.2 (94.1)
Q71	33	92.6 (92.3)	91.0 (90.6)	80.2 (80.4)	77.0 (77.4)	88.1 (88.2)
Q72	15	97.3 (97.2)	96.7 (96.8)	90.2 (91.6)	90.0 (90.5)	94.1 (94.3)
Q73	13	96.4 (96.2)	96.3 (96.2)	88.3 (87.7)	86.1 (86.6)	93.1 (93.3)
Q74	13	97.7 (98.3)	97.4 (97.6)	91.6 (94.5)	92.2 (93.6)	96.0 (96.5)
Q75	9	97.6 (97.0)	97.5 (96.8)	92.1 (91.0)	91.9 (91.5)	95.8 (94.9)
Q76	8	96.5 (96.9)	96.2 (97.2)	89.3 (91.1)	87.5 (89.4)	94.1 (95.4)
Q77	10	96.0 (96.7)	96.0 (96.2)	88.5 (88.9)	87.1 (88.1)	93.1 (93.3)
Q78	10	97.6 (97.1)	96.8 (96.1)	91.1 (91.2)	89.6 (91.3)	94.1 (93.7)
Q79	7	96.7 (96.5)	95.9 (95.6)	88.9 (90.6)	88.8 (89.8)	92.8 (93.6)
Q80	9	97.5 (97.3)	96.2 (96.0)	90.2 (90.5)	89.2 (89.5)	95.7 (95.4)
Q81	6	95.0 (92.3)	91.8 (91.9)	82.7 (83.0)	79.2 (79.7)	89.2 (89.0)
Q82	12	96.4 (96.7)	95.7 (95.8)	89.6 (90.5)	88.4 (88.9)	94.9 (94.4)

* See table 1a for key to NHS England local team organisational code.

[§]The decrease in coverage of the pre-school booster (DTaP/IPV) some English area teams is thought to be a data quality issue due to an inconsistency between the information provided by PHE in the COVER user guidance and the information standard and may have resulted in the data extraction of one of the main Child Health Information Systems (CHIS) under estimating coverage of this booster. This is currently being investigated and the English and UK coverage estimates of this vaccine should be interpreted with caution

[^] Former area team and local team aggregates are based on former PCT data

3b. Completed primary immunisations and boosters at five years by NHS England Area Team, April to June 2016 (January to March 2016[^])

NHS England local team Code*	Area Team (AT) code*	No. of LAs [†] in AT	Primary		Booster		
			DTaP/IPV Hib3 %	MMR1 %	MMR2 %	DTaP/ IPV % ^{\$}	Hib/ MenC
Q70	Q70	7	96.1 (96.4)	95.4 (95.3)	89.5 (90.3)	87.9 (88.9)	93.2 (94.1)
Q71	Q71	33	92.6 (92.3)	91.0 (90.6)	80.2 (80.4)	77.0 (77.4)	88.1 (88.2)
Q72	Q50	6	97.9 (97.2)	96.1 (96.6)	91.1 (91.4)	91.5 (91.7)	94.4 (94.7)
	Q51	4	96.9 (96.9)	96.9 (96.5)	88.7 (91.8)	89.3 (88.8)	92.7 (93.2)
	Q52	5	97.2 (97.4)	97.0 (97.1)	90.5 (91.6)	89.4 (90.8)	94.7 (94.8)
Q73	Q46	10	96.6 (96.8)	96.5 (96.5)	89.8 (90.0)	87.3 (89.1)	93.8 (93.8)
	Q47	3	96.0 (95.1)	96.0 (95.6)	85.2 (83.1)	83.6 (81.4)	91.7 (92.3)
Q74	Q45	6	98.1 (98.5)	97.7 (97.4)	93.0 (95.4)	93.4 (95.3)	96.8 (97.4)
	Q49	7	97.5 (98.2)	97.2 (97.7)	90.7 (94.0)	91.4 (92.5)	95.4 (95.9)
Q75	Q44	4	98.0 (97.2)	97.6 (97.0)	93.2 (91.9)	93.4 (92.6)	95.6 (94.6)
	Q48	5	97.2 (96.7)	97.4 (96.7)	90.9 (90.1)	90.3 (90.4)	96.1 (95.1)
Q76	Q55	4	95.7 (97.9)	95.6 (97.6)	87.2 (90.0)	86.5 (88.7)	92.4 (94.8)
	Q60	4	97.6 (95.6)	96.9 (96.7)	92.3 (92.4)	89.0 (90.3)	96.6 (96.2)
Q77	Q53	4	97.2 (98.4)	97.3 (98.3)	92.9 (93.8)	92.2 (94.7)	95.1 (95.8)
	Q54	6	95.4 (95.7)	95.3 (95.0)	86.1 (86.2)	84.4 (84.6)	92.0 (91.9)
Q78	Q58	6	97.5 (97.1)	96.7 (96.1)	91.0 (91.5)	89.1 (91.9)	94.5 (94.3)
	Q59	4	97.6 (97.0)	97.0 (96.2)	91.3 (90.5)	90.3 (90.2)	93.3 (92.6)
Q79	Q56	4	96 (96.2)	95.4 (95.2)	88.2 (90.8)	87.6 (89.0)	91.2 (92.2)
	Q57	3	97.4 (96.9)	96.5 (96.1)	89.7 (90.3)	90.3 (91.0)	94.7 (95.5)
Q80	Q65	4	97.5 (97.6)	96.0 (96.1)	89.2 (89.4)	92.1 (91.8)	95.9 (95.9)
	Q66	5	97.4 (97.1)	96.4 (95.9)	91.1 (91.4)	86.4 (87.4)	95.5 (95.0)
Q81	Q67	2	95.2 (95.4)	95.3 (94.7)	86.4 (85.4)	83.1 (82.4)	92.7 (92.4)
	Q68	4	94.8 (90.2)	89.3 (89.9)	80.1 (81.4)	76.6 (77.9)	86.8 (86.8)
Q82	Q64	4	96.2 (96.9)	95.8 (96.4)	88.6 (90.7)	85.9 (87.6)	94.2 (94.1)
	Q69	8	96.5 (96.6)	95.7 (95.4)	90.2 (90.4)	89.9 (89.8)	95.3 (94.6)

* See table 1a and 1b for keys to NHS England local team/Area Team organisational code.

[†] Local Authorities

^{\$} The decrease in coverage of the pre-school booster (DTaP/IPV) some English area teams is thought to be a data quality issue due to an inconsistency between the information provided by PHE in the COVER user guidance and the information standard and may have resulted in the data extraction of one of the main Child Health Information Systems (CHIS) under estimating coverage of this booster. This is currently being investigated and the English and UK coverage estimates of this vaccine should be interpreted with caution

[^] Former area team and local team aggregates are based on former PCT data

Table 4. Neonatal hepatitis B coverage at 12 and 24 months in England by NHS England Area Team April to June 2016 (*January to March 2016*[^])

Area Team (AT code)*	LA returns with 12 month data	12 month denominator	% Coverage at 12 months	LA returns with 24 month data	24 month denominator	% Coverage at 24 months
Q44	2 of 4	3	100 (-)	2 of 4	4	75 (100)
Q45	6 of 6	4	100 (100)	6 of 6	3	33 (0)
Q46	9 of 10	49	61 (78)	9 of 10	93	30 (39)
Q47	0 of 3	-	- (-)	0 of 3	-	- (-)
Q48	2 of 5	8	88 (-)	3 of 5	7	71 (-)
Q49	7 of 7	12	92 (67)	7 of 7	7	100 (100)
Q50	5 of 6	5	100 (83)	5 of 6	5	60 (29)
Q51	4 of 4	13	100 (100)	4 of 4	7	100 (100)
Q52	5 of 5	25	100 (95)	5 of 5	22	91 (100)
Q53	4 of 4	12	100 (100)	4 of 4	6	100 (100)
Q54	6 of 6	50	100 (97)	2 of 6	4	25 (46)
Q55	4 of 4	12	100 (100)	4 of 4	8	100 (83)
Q56	4 of 4	13	85 (83)	4 of 4	7	86(100)
Q57	1 of 3	8	75(100)	2 of 3	7	71 (75)
Q58	6 of 6	31	94 (100)	6 of 6	23	96 (97)
Q59	3 of 4	5	100 (92)	3 of 4	18	72 (86)
Q60	4 of 4	5	100 (100)	4 of 4	4	100 (83)
Q64	4 of 4	6	100 (100)	4 of 4	4	100 (88)
Q65	4 of 4	13	92 (100)	4 of 4	10	90(100)
Q66	5 of 5	5	80 (100)	5 of 5	2	100 (-)
Q67	2 of 2	7	100 (100)	2 of 2	12	100 (100)
Q68	4 of 4	8	88 (100)	4 of 4	9	89 (83)
Q69	8 of 8	26	100 (88)	8 of 8	16	76 (83)
Q70	6 of 7	34	100 (100)	6 of 7	4	100 (71)
Q71	27 of 33	206	78 (85)	28 of 33	215	56 (69)
England	132 of 152	560	87 (91)	131 of 152	502	63 (69)

* See table 1b for key to NHS England Area Team organisational code

Notes: "–" indicates "no data available" for the denominator but "not applicable" for coverage; see table 1a for key to Area Team organisational codes.

[^] Former area team and local team aggregates are based on former PCT data

Table 5. BCG vaccine coverage at 12 months in England by NHS England Area Team April to June 2016 (April 2015 to March 2016)

Upper tier Local Authority	TB rate (per 100,000) 2014 estimates	Number of eligible children (1st birthday during April to June 2015)	Universal BCG coverage (%)
(a) TB incidence $\geq 40/100,00$ and universal BCG vaccination policy			
Newham	100	1291	92.6 (91.2)
Brent	82.9	1271	22.3 (32.3)
Ealing	65.3	1282	57.6 (59.3)
Hounslow	64	1015	62.2 (87.4)
Harrow	60.4	845	27.2 (40.1)
Slough	51.5	<i>not available</i>	<i>not available</i>
Redbridge	50.5	1209	52.2 (81.7)
Greenwich	42	1232	81 (82.1)
Hillingdon	41.9	1028	67.6 (73.2)
Waltham Forest	41.3	1037	71.7 (87.4)
(b) TB incidence $\geq 40/100,00$ and selective BCG vaccination policy			
Leicester	48	<i>selective programme</i>	
(c) TB Incidence $< 40/100,000$ and universal BCG policy			
Tower Hamlets	38.3	921	85 (91.6)
Luton	35.1	695	81.5 (89.8)
Barking and Dagenham	35	344	37.7 (70.1)
Haringey	33.2	67	6.6 (15.2)
Hackney	32.4	673	62 (68.3)
Southwark	31.7	<i>not available</i>	<i>not available</i>
Merton	29.6	197	27.1 (28.7)
Islington	29.3	464	81.8 (77.2)
Croydon	27.6	<i>n.a.</i>	<i>n.a.</i>
Lambeth	26.6	<i>n.a.</i>	<i>n.a.</i>
Lewisham	25.9	582	50.1 (69.6)
Hammersmith and Fulham	24.2	288	49 (39.2)
Westminster	24	198	34.8 (41.9)
Barnet	23.2	<i>not available</i>	<i>not available</i>
Enfield	22.5	43	3.9 (2.4)
Kensington and Chelsea	22.2	197	34.9 (42)
Camden	21.8	299	48.5 (77.7)
Wandsworth	21.7	311	24.8 (50.8)
Kingston upon Thames	15.8	108	16 (21.7)
Sutton	13.3	183	27 (28.7)
City of London	12.9	8	57.1 (37.3)
Havering	10.9	70	7.9 (26.5)
Bexley	10.7	592	77.9 (61.8)
Bromley	8.1	242	21.7 (24.1)
Richmond upon Thames	5.9	134	21.4 (34)